NATURAL RESOURCES CONSERVATION SERVICE

CONSERVATION PRACTICE STANDARD

POND SEALING OR LINING , SOIL DISPERSANT

(No.)

CODE 521B

DEFINITION

Installing a fixed lining of impervious material or treating the soil in a pond mechanically or chemically to impede or prevent excessive water loss.

PURPOSE

This practice may be applied as part of a resource management system to support the following:

- To reduce seepage losses in ponds to an acceptable level.

CONDITIONS WHERE PRACTICE APPLIES

This practice standard applies to the sealing of ponds with soil dispersants.

This practice applies where water loss from a pond through leakage is, or will be, of such proportion as to prevent the pond from fulfilling its planned purpose or where leakage will damage land and crops or cause waste of water or environmental problems.

CRITERIA

Ponds to be lined shall be constructed to meet the NRCS standard for Irrigation Pits or Regulating Reservoirs (552), Irrigation Storage Reservoirs (436), Ponds (378), Waste Treatment Lagoons (359), Waste Storage Facility (313), or Wildlife Watering Facilities (648) as appropriate.

Soil Properties

For chemical sealing, soils shall have properties approximating the following:

1. At least 50 percent finer that 0.074 mm diameter (No. 200 sieve)
2. At least 15 percent finer than 0.002 mm diameter.
3. Less than 0.50 percent soluble salts (based on dry soil weight).

Dispersants

Tetrasodium pyrophosphate (TSPP) and sodium tripolyphosphate (STPP) shall be used in preference to other pholyphosphate salts. Commercial phosphatic fertilizer is not acceptable. Soda ash, technical grade, 99-100 percent sodium carbonate may be used.

These dispersants shall be finely granular; 95 percent of the material shall pass a number 30 sieve and less than 5 percent a number 100 sieve.

Standard commercial sodium chloride is satisfactory in the granulated form normally available.

Other dispersants may be used in the form found to be satisfactory by local experience.

Rate of application

The rate of application and the kind of dispersant to use shall be based on laboratory tests unless sufficient data are available on the field performance of previously tested soils that are similar to the soil to be sealed in texture

and chemical characteristics.

In the absence of laboratory tests for the soils to be sealed, the minimum application shall be:

Sodium polyphosphate	5 to 10lb/100 ft^2
Sodium chloride	20 to 33 lb/100 ft^2
Soda ash	10 to 20 lb/100 ft^2
Other	As found to be adequate by local experience.

Thickness of treated blanket

The finished treated blanket shall be at least 6 in. thick for water depths 8 ft. or less. For greater depths of water, the blanket thickness shall be 12 in., and treated in two 6 in. lifts. A minimum thickness of 12 in. is recommended for all areas in the vertical range of water surface fluctuation.

In addition to the treated blanket, at least 2 ft. of fine-grained soil shall be placed over fractured rock outcrop or other highly permeable material.

CONSIDERATIONS

Water Quantity

1. Effects upon components of the water budget, especially effects on volumes and rates of runoff, infiltration, evaporation, transpiration, deep percolation, and ground water recharge.
2. Variability of the practice's effects caused by seasonal or climatic changes.
3. Effects on downstream flows or aquifers that would affect other water uses or users.
4. Effects on the volume of downstream flow to prohibit undesirable environmental, social, or economic effects.
5. Potential use for water management to conserve water.

Water Quality

1. Effects on the movement of sediment, pathogens, and soluble substances carried by seepage toward the ground water.
2. Effects on the visual quality of the downstream water resources.
3. Short-term and construction-related effects of this practice on quality of the local downstream water resources.
4. Effects on the movement of dissolved substances below the pool area and toward ground water.
5. Effects on wetlands or water-related wildlife habitats.

PLANS AND SPECIFICATIONS

Plans and specifications for sealing ponds with soil dispersants shall be in keeping with this standard and shall describe the requirements for applying the practice to achieve its intended purpose.